

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

Reserve
1.96
R3154

U. S. DEPT. OF AGRICULTURE
NATIONAL AGRICULTURAL LIBRARY

APR 3 1969

CURRENT SERIAL RECORDS

WATER SUPPLY OUTLOOK FOR ARIZONA

and
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

UNITED STATES DEPARTMENT of AGRICULTURE...SOIL CONSERVATION SERVICE,
SALT RIVER VALLEY WATER USERS ASSOCIATION
and
ARIZONA AGRICULTURAL EXPERIMENT STATION

Data included in this report were obtained by the agencies
named above in cooperation with the Federal, State and pri-
vate organizations listed on the last page of this report.

AS OF
MAR. 15, 1969

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1400 snow courses in Western United States and in the Columbia Basin in British Columbia. In the near future, it is anticipated that automatic snow water equivalent sensing devices along with radio telemetry will provide a continuous record of snow water equivalent at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, Western Regional Technical Service Center, Room 209, 701 N. W. Glisan, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	P. O. Box "F", Palmer, Alaska 99645
Arizona	6029 Federal Building, Phoenix, Arizona 85205
Colorado (N. Mex.)	12417 Federal Building, Denver, Colorado 80521
Idaho	P. O. Box 38, Boise, Idaho 83707
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1218 S. W. Washington St., Portland, Oregon 97205
Utah	4012 Federal Building, Salt Lake City, Utah 84111
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 340, Casper, Wyoming 82602

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P. O. Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia



WATER SUPPLY OUTLOOK FOR ARIZONA

and
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued by

KENNETH E. GRANT
ADMINISTRATOR
SOIL CONSERVATION SERVICE
WASHINGTON, D.C.

|||||

Released by

M. D. BURDICK
STATE CONSERVATIONIST
SOIL CONSERVATION SERVICE
PHOENIX, ARIZONA

In Cooperation with

RICHARD K. FREVERT
DIRECTOR
ARIZONA AGRICULTURAL
EXPERIMENT STATION

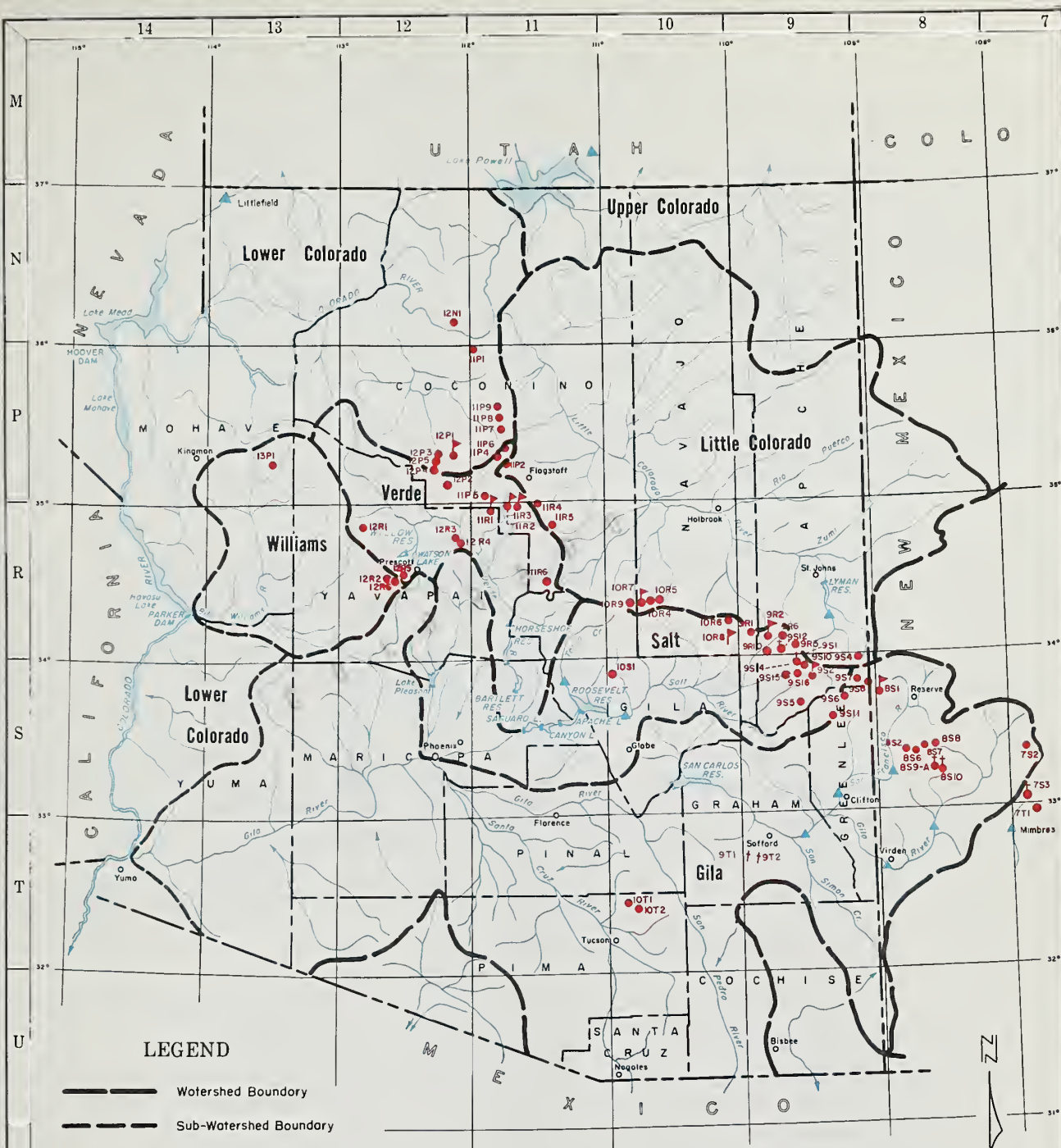
VICTOR I. CORBELL
PRESIDENT
SALT RIVER VALLEY WATER
USERS ASSOCIATION

|||||

Report prepared by

RICHARD W. ENZ, Snow Survey Supervisor

SOIL CONSERVATION SERVICE
ROOM 6029 FEDERAL BUILDING
PHOENIX, ARIZONA 85025



ARIZONA COOPERATIVE SNOW SURVEYS Snow Courses and Sub-Watersheds

25 0 25 50 75
SCALE IN MILES

INDEX to SNOW COURSES and SOIL MOISTURE STATIONS

Number	Name	Sec	Twp	Rge	Elevation	River Basin
11R6	Baker Butte (p)	4	12N	9E	7300	Verde
9S1-A	Baldy (p)	28	7N	27E	9125	Little Colorado
9S15	Baldy #2	12	6N	26E	10000	Little Colorado
9S16	Baldy #3	13	6N	26E	11000	Little Colorado
10T1	Bear Wallow	6	12S	16E	8100	Gila
12P5	Bill Williams Intermediate	17	21N	2E	8550	Lower Colorado
12P4	Bill Williams Summit	17	21N	2E	8950	Lower Colorado
9S6	Beaver Head	13	4N	30E	8000	San Francisco
9S10-*	Black River Divide	10	6N	27E	9400	Salt
12N1	Bright Angel	34	33N	3E	8400	Lower Colorado
12R1	Camp Wood	3	16N	6W	5700	Verde
10R7-M	Canyon Creek #2	18	11N	15E	7500	Little Colorado
10R9	Canyon Point (p)	28	11N	14E	7600	Salt
11R2-M	Casner Park	19	18N	8E	6930	Verde
12P1-M	Chalender	27	22N	3E	7100	Verde
12R6	Copper Basin Divide (p)	23	13N	3W	6720	Verde
10R8-*	Corduroy Creek	4	8N	21E	6000	Salt
9S7	Coronado Trail	26	5N	30E	8000	San Francisco
9T2-A	Crazy Horse	34	8S	24E	10200	Gila
7T1	Emory Pass #1	16	16S	9W**	7800	Mimbres
7T2	Emory Pass #2	16	16S	9W**	7800	Mimbres
10R6	Forest Dale	2	9N	21E	6430	Salt
11P2	Fort Valley (p)	22	22N	6E	7350	Little Colorado
9R5	Ft. Apache	18	7N	27E	9160	Little Colorado
8S1-M	Frisco Divide	31	6S	20W**	8000	San Francisco
12R4	Gaddes Canyon	11	15N	2E	7600	Verde
10R5	Gentry	36	11N	15E	7650	Salt
11P1	Grand Canyon	21	30N	4E	7500	Lower Colorado
9S11	Hannagan Meadows (p)	19	3N	29E	9090	Salt
11R5	Happy Jack	30	17N	9E	7630	Verde
9R10	Hawley Lake	13	7N	24E	8300	Salt
10R4	Heber (p)	28	11N	15E	7600	Little Colorado
9T1-A	High Peak	34	8S	24E	10500	Gila
8S9-A	Hummingbird	19	11S	17W**	10550	San Francisco
8S6	Ice King	6	11S	18W**	8020	San Francisco
7S2	Inman	6	11S	10W**	7800	Gila
11P9	Inner Basin #1 (p)	28	23N	7E	10000	Little Colorado
11P8	Inner Basin #2 (p)	28	23N	7E	9750	Little Colorado
11P7	Inner Basin #3	3	23N	7E	10250	Little Colorado
12R2	Iron Springs	22	14N	3W	6200	Bill Williams
9S2-A	Maverick Fork (p)	13	6N	27E	9150	Salt
7S3-A	McKnight Cabin	10	15S	10W**	9300	Mimbres
9R2-M	McNary	23	8N	23E	7200	Salt
9R1	Milk Ranch	33	8N	23E	7000	Salt
12R3	Mingus Mountain	3	15N	2E	7100	Verde
8S2	Mogollon	2	11S	19W**	7000	San Francisco
11R4	Mormon Lake	13	18N	8E	7350	Little Colorado
11R3-M-A	Mormon Mountain (p)	14	18N	8E	7500	Verde
9S12-A	Mt. Ord	4	6N	26E	11000	Salt
11R1-M	Munds Park	15	18N	7E	6500	Verde
11P5-M	Newman Park	25	19N	6E	6750	Verde
9S4	Nutriso	23	6N	30E	8500	San Francisco
9S5	Pacheta	27	4-1/2N	27E	7800	Salt
8S7	Redstone Trail	5	11S	18W**	8600	San Francisco
10T2	Rose Canyon	15	12S	16E	7300	Gila
8S8	Silver Creek Divide	4	11S	18W**	9000	San Francisco
9S14-A	Smith Cienega	10	6N	26E	9850	Salt
11P4	Snow Bowl #1 (p)	36	23N	6E	10260	Verde
11P6	Snow Bowl #2	31	23N	7E	11000	Verde
9S8	State Line	6	6S	21W**	8000	San Francisco
12R5	White Spar	19	13N	2W	6000	Verde
12P2	White Horse Lake Jet	2	20N	2E	7150	Verde
8S10-A	Whitewater	19	11S	17W**	10750	Gila
12P3	Williams Ski Run	9	21N	2E	7720	Lower Colorado
13P1	Willow Ranch	16	21N	11W	5000	Bill Williams
9R6	Wilson Lake (p)	4	7N	26E	9000	Salt
10S1	Workman Creek	33	6N	14E	6900	Salt

M SOIL MOISTURE STA.

(p) STORAGE GAGE

A AERIAL SNOW DEPTH MARKER

* SOIL MOISTURE STA. ONLY

** NM PRINCIPAL MERIDIAN

ARIZONA WATER SUPPLY OUTLOOK

MARCH 15, 1969

* All streamflow forecasts have been increased, due to the heavy *
* storm activity the last two weeks. Good water supplies are in *
* prospect for all of Arizona except along the Upper Gila. *

SNOW COVER

Significant increase in snow pack has occurred on all watersheds due to recent storms and continued cold weather. Snow cover now varies from about twice normal on the Salt, Gila and Little Colorado Watersheds to four times normal on the Verde.

Snow water equivalent, on many Verde snow courses, is the highest for this date since 1952. On the San Francisco Peaks there is 113 inches containing 28.4 inches of water.

PRECIPITATION

Above normal precipitation occurred during the first half of March with heaviest amounts persisting in the Flagstaff area and along the "Rim."

RESERVOIR STORAGE

Salt River Project Reservoirs, containing 1,773,610 acre-feet, are now 86% of capacity and 56% above the 1953-67 15-year average. Storage in San Carlos Reservoir is 410% of average and Lake Pleasant, 264%.

SOIL MOISTURE

Soil moisture is high on the Verde and Salt River Watersheds, but very low on the Gila.

STREAMFLOW AND WATER SUPPLY

Runoff on the Verde River is forecast to be 56% above average, due to heavy snow cover and very favorable watershed conditions. With warm weather likely in the next two weeks, the Verde is expected to rise substantially and produce about 70,000 acre-feet the last half of March. Since the Verde Reservoirs are 84,000 acre-feet short of capacity, and expected use during this period is 75,000 acre-feet, these reservoirs are not anticipated to spill. More runoff is also predicted on the Salt River than the reservoirs will hold, but here the spring runoff peak typically occurs in April and normal usage by then will keep these reservoirs from filling. The excellent water supply outlook has prompted the SRP Board of Governors to allot additional water at a reduced cost at least until April 7.

Streamflow forecasts on the Gila and San Francisco Rivers, although slightly increased, are still expected to be about 40% below average. This is mainly due to very low soil moisture conditions. Water supplies will be short along the Upper Gila.

The heaviest runoff since 1952 is forecast for the Virgin River in the extreme northwest corner of Arizona. With a volume forecast of over four times average expected, some flooding is likely there.

STREAMFLOW FORECASTS - MARCH 15, 1969

The following summarized runoff forecasts are based principally on mountain snow cover and on the assumption that precipitation and temperature will be near average from the present time to the end of the forecast period. Appreciable deviations from normal of temperature and/or precipitation will correspondingly modify these forecasts.

SUB-WATERSHED, STREAM and STATION	SEASONAL STREAMFLOW IN THOUSANDS OF ACRE FEET					
	FORECAST PERIOD: MARCH - MAY, INCLUSIVE					
	Forecast Percent					
	Runoff 1969	15-Year Average	Measured Runoff			1953-67 Average
			1968	1967	1966	
<u>SALT RIVER DRAINAGE</u>						
Salt near Roosevelt	282	139	410.0	47.0	400.4	202.3
Tonto Creek near Roosevelt	25	111	39.0	3.9	15.4	22.5
Verde River above Horseshoe	166	156	127.4	40.0	132.1	106.5
<u>GILA RIVER DRAINAGE</u>						
Gila River near Gila	23	71	107.8	10.4	87.7	32.2
Gila River near Solomon	45	62	286.1	14.4	227.9	73.0
Gila River near Solomon						
" (Month of March)	20	52	147.1	6.2	148.9	38.4
Gila River near Virden	23	63	151.4	10.0	111.4	36.3
Frisco River at Clifton	24	62	134.0	8.3	109.3	38.7
Frisco River at Glenwood	9	56	68.5	3.1	57.5	16.0
<u>MIMBRES RIVER DRAINAGE</u>						
Mimbres River near Mimbres	1.0	42	---	0.7	7.5	2.4
<u>COLORADO RIVER DRAINAGE</u>						
Little Colorado River above						
Lyman Dam (MARCH-JUNE, Incl)	11	141	20.8	0.7	21.6	7.8
Colorado River -- Lake Powell*						
Inflow (APRIL-JULY, Incl.)	9,060	139	7247.0	6045.0	4600.0	6527.0
<u>VIRGIN RIVER DRAINAGE</u>						
Virgin River nr. Littlefield						
(APRIL-JUNE, Incl.)	155	463	36.2	39.0	26.4	33.5
<u>GRANITE CREEK DRAINAGE</u>						
Granite Creek	1.3	---	---	---	---	---
Willow Creek	.5	---	---	---	---	---

Gila River near Solomon is forecast to remain above 100 cfs until May 1.

* Forecast issued by Soil Conservation Service, Salt Lake City, Utah.

UNITED STATES DEPARTMENT OF AGRICULTURE

BUREAU OF PLANT INDUSTRY
WASHINGTON, D. C.

PLANT INDUSTRY
BUREAU OF PLANT INDUSTRY
WASHINGTON, D. C.

PLANT INDUSTRY
BUREAU OF PLANT INDUSTRY
WASHINGTON, D. C.

PLANT INDUSTRY
BUREAU OF PLANT INDUSTRY
WASHINGTON, D. C.

PLANT INDUSTRY
BUREAU OF PLANT INDUSTRY
WASHINGTON, D. C.

PLANT INDUSTRY
BUREAU OF PLANT INDUSTRY
WASHINGTON, D. C.

PLANT INDUSTRY
BUREAU OF PLANT INDUSTRY
WASHINGTON, D. C.

PLANT INDUSTRY
BUREAU OF PLANT INDUSTRY
WASHINGTON, D. C.

PLANT INDUSTRY
BUREAU OF PLANT INDUSTRY
WASHINGTON, D. C.

STATUS OF ARIZONA RESERVOIR STORAGE - ABOUT MARCH 15, 1969

SUB- WATERSHED and/or STREAM	RESERVOIR	USABLE CAPACITY 1000s ACRE FEET	USABLE STORAGE - 1000s ACRE FEET			
			1969	1968	1967	15-Year Average 1953-67

GILA RIVER DRAINAGE

Agua Fria	Lake Pleasant	157.6	112.4	157.6	123.7	42.6
Granite	Watson Lake	4.7	4.7	4.7	3.3	----
Granite	Willow Creek	6.1	2.2	5.4	3.9	----
Gila	San Carlos	984.9	457.6	597.7	289.6	111.4
Verde (2)	Bartlett & Horseshoe	317.7	234.0	305.6	151.5	123.3
Salt (4)	Roosevelt, Apache, Canyon & Saguaro	1,755.0	1,539.8	1,693.1	1,458.8	986.7

COLORADO RIVER DRAINAGE

Colorado	Lake Havasu	619.4	546.3	549.7	525.2	537.6
Colorado	Lake Mohave	1,810.0	1,685.1	1,714.0	1,670.0	1,708.5
Colorado	Lake Mead	26,159.0	15,367.0	14,642.0	15,566.0	16,268.3
Colorado	Lake Powell	25,002.0	9,402.0	8,089.0	7,424.1	----
Little Colorado	Lyman	30.6	19.2	19.9	17.7	9.7
Little Colorado	Show Low Lake	5.1	.5	5.1	0.5	1.7 *

* Average is for less than 15 years of record in the 1953-67 period.

THE UNIVERSITY OF CHICAGO

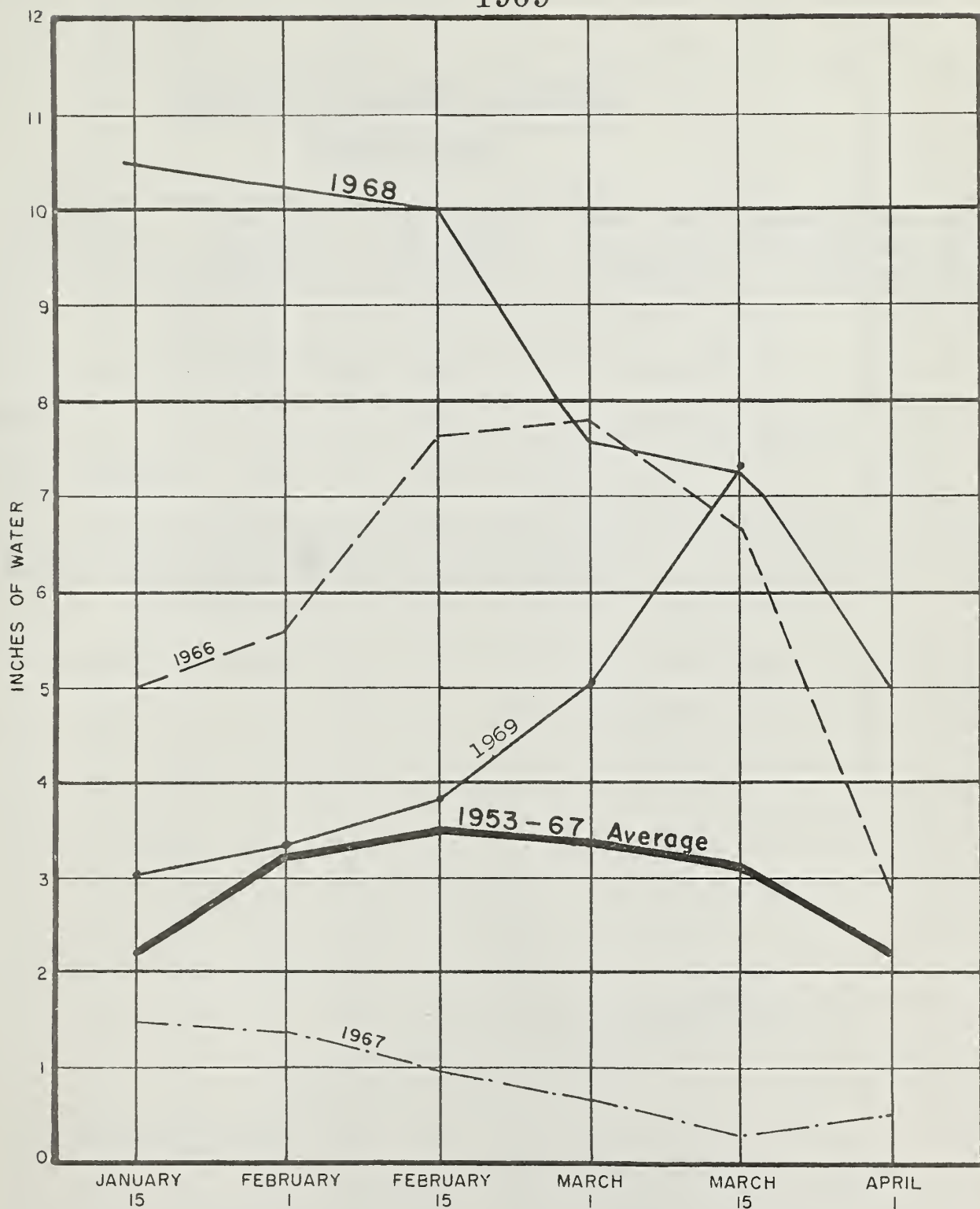
FACULTY				SALARY		TERMS	
NAME	DEPARTMENT	POSITION	CLASS	1955-56	1956-57	1957-58	1958-59

FACULTY - CONTINUED							
ALLEN, J. W.	PHYSICS	ASSISTANT PROFESSOR	PH.D.	1955	1956	1957	1958
ANDERSON, J. R.	PHYSICS	ASSISTANT PROFESSOR	PH.D.	1955	1956	1957	1958
ARMSTRONG, J. W.	PHYSICS	ASSISTANT PROFESSOR	PH.D.	1955	1956	1957	1958
ATKINS, J. W.	PHYSICS	ASSISTANT PROFESSOR	PH.D.	1955	1956	1957	1958
BALDWIN, J. W.	PHYSICS	ASSISTANT PROFESSOR	PH.D.	1955	1956	1957	1958
BALDWIN, J. W.	PHYSICS	ASSISTANT PROFESSOR	PH.D.	1955	1956	1957	1958
BALDWIN, J. W.	PHYSICS	ASSISTANT PROFESSOR	PH.D.	1955	1956	1957	1958
BALDWIN, J. W.	PHYSICS	ASSISTANT PROFESSOR	PH.D.	1955	1956	1957	1958
BALDWIN, J. W.	PHYSICS	ASSISTANT PROFESSOR	PH.D.	1955	1956	1957	1958
BALDWIN, J. W.	PHYSICS	ASSISTANT PROFESSOR	PH.D.	1955	1956	1957	1958

FACULTY - CONTINUED							
BALDWIN, J. W.	PHYSICS	ASSISTANT PROFESSOR	PH.D.	1955	1956	1957	1958
BALDWIN, J. W.	PHYSICS	ASSISTANT PROFESSOR	PH.D.	1955	1956	1957	1958
BALDWIN, J. W.	PHYSICS	ASSISTANT PROFESSOR	PH.D.	1955	1956	1957	1958
BALDWIN, J. W.	PHYSICS	ASSISTANT PROFESSOR	PH.D.	1955	1956	1957	1958
BALDWIN, J. W.	PHYSICS	ASSISTANT PROFESSOR	PH.D.	1955	1956	1957	1958
BALDWIN, J. W.	PHYSICS	ASSISTANT PROFESSOR	PH.D.	1955	1956	1957	1958
BALDWIN, J. W.	PHYSICS	ASSISTANT PROFESSOR	PH.D.	1955	1956	1957	1958
BALDWIN, J. W.	PHYSICS	ASSISTANT PROFESSOR	PH.D.	1955	1956	1957	1958
BALDWIN, J. W.	PHYSICS	ASSISTANT PROFESSOR	PH.D.	1955	1956	1957	1958
BALDWIN, J. W.	PHYSICS	ASSISTANT PROFESSOR	PH.D.	1955	1956	1957	1958

Continued on next page

RELATIVE SNOW WATER ACCUMULATION ARIZONA 1969



This graph represents the average snow water content on eleven selected snow courses on Arizona Sub-Watersheds.

SNOW COVER ON ARIZONA WATERSHEDS

MARCH 15, 1969

Watershed	No. of Courses Average	Water Content of Snow (Inches)	This Year's Water Content of Snow Expressed as Percent of: Last Year	Water Content of Snow Expressed as Percent of: Average *
Gila	6	3.2	6.1	1.4
Salt	9	8.6	10.1	3.7
Verde	7	8.4	5.3	2.0
Little Colorado	4	8.3	8.7	4.1

* Actual or Estimated 1953-67, 15-year Average.

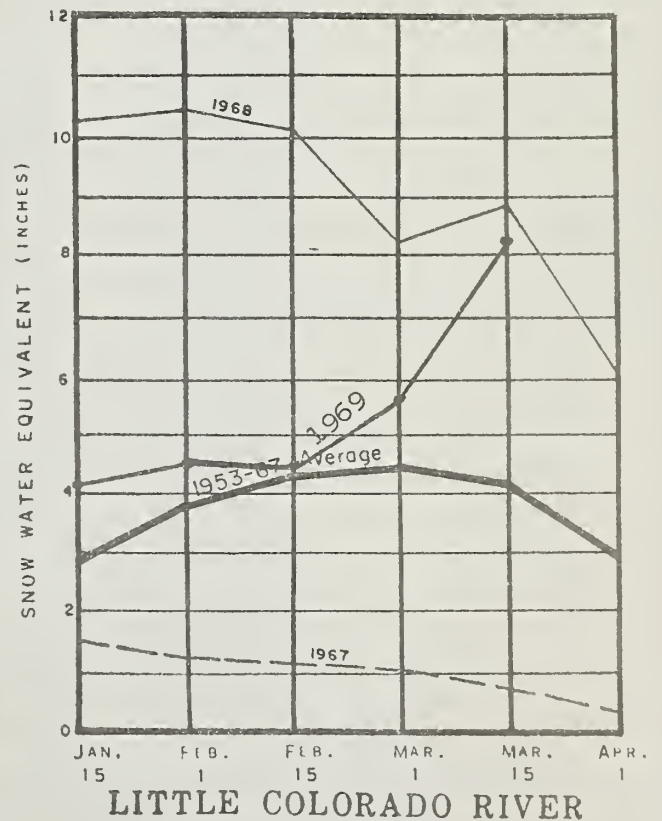
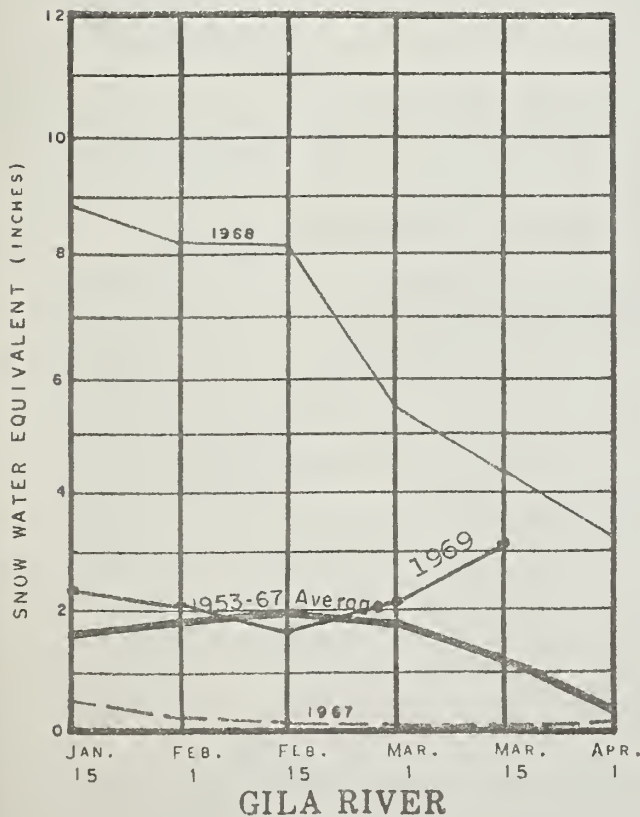
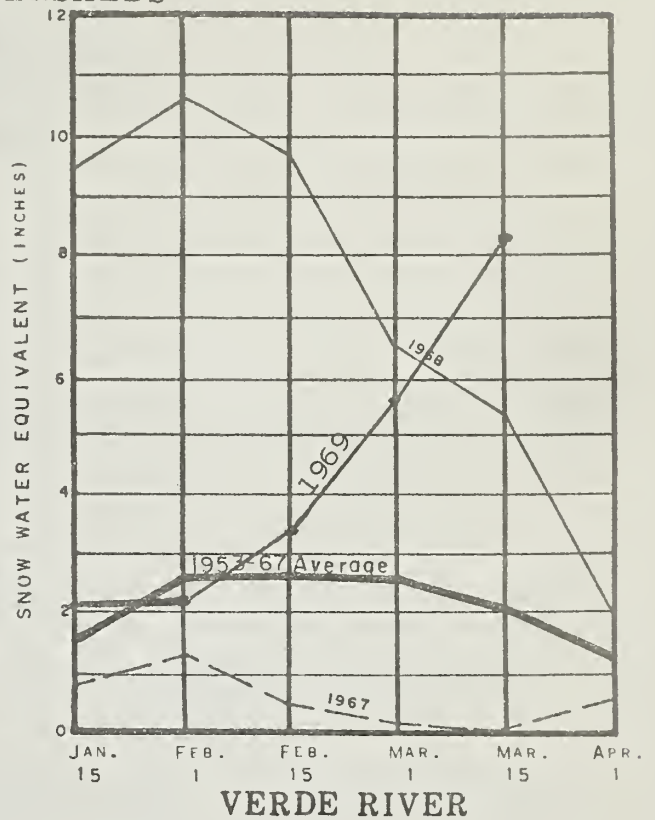
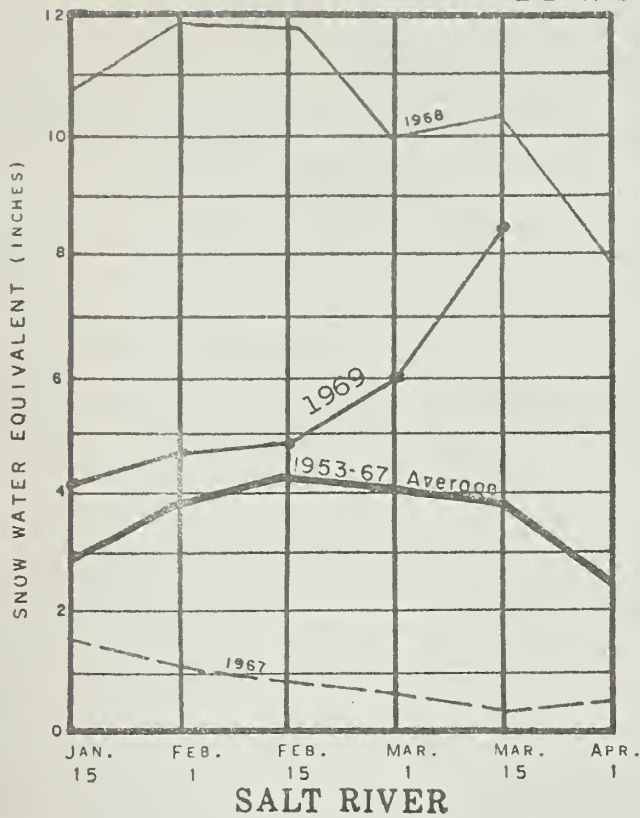
Report of the Commission on the Administration of the Federal Reserve System

1913-1914

Item	1913	1914	Total	Percentage of Total
1. Reserve Bank of New York	100	100	200	100.00
2. Reserve Bank of Boston	100	100	200	100.00
3. Reserve Bank of Philadelphia	100	100	200	100.00
4. Reserve Bank of St. Louis	100	100	200	100.00
5. Reserve Bank of Chicago	100	100	200	100.00
6. Reserve Bank of Minneapolis	100	100	200	100.00
7. Reserve Bank of Kansas City	100	100	200	100.00
8. Reserve Bank of Dallas	100	100	200	100.00
9. Reserve Bank of San Antonio	100	100	200	100.00
10. Reserve Bank of Fort Worth	100	100	200	100.00
11. Reserve Bank of Houston	100	100	200	100.00
12. Reserve Bank of New Orleans	100	100	200	100.00
13. Reserve Bank of Atlanta	100	100	200	100.00
14. Reserve Bank of Miami	100	100	200	100.00
15. Reserve Bank of Jacksonville	100	100	200	100.00
16. Reserve Bank of Savannah	100	100	200	100.00
17. Reserve Bank of Norfolk	100	100	200	100.00
18. Reserve Bank of Baltimore	100	100	200	100.00
19. Reserve Bank of Washington	100	100	200	100.00
20. Reserve Bank of New York	100	100	200	100.00

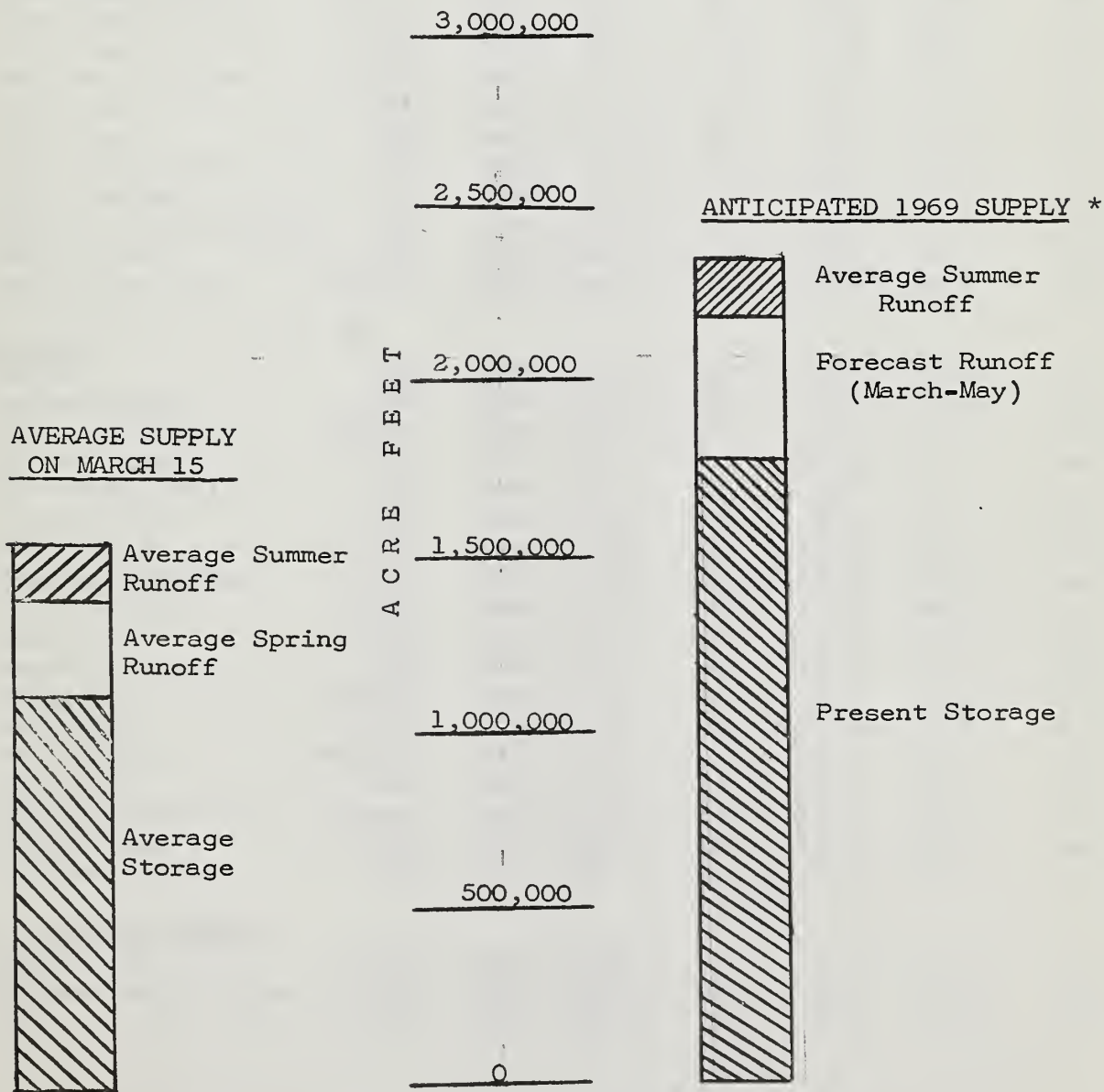
Report of the Commission on the Administration of the Federal Reserve System, 1913-1914

1969 ARIZONA SNOW COVER BY WATERSHEDS



WATER SUPPLY INVENTORY
SALT RIVER VALLEY SYSTEM

MARCH 15, 1969



* Based on Present Storage + Forecast Spring Runoff + Average Summer Runoff

SNOW

ABOUT MARCH 15, 1969

DRAINAGE BASIN and SNOW COURSE			CURRENT INFORMATION			PAST RECORD	
NAME	NO.	ELEVATION	DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	
						LAST YEAR	AVERAGE ^(a)

GILA RIVER

Bear Wallow	10T1	8100	3/14	13	4.5	15.3	3.7
Beaver Head	9S6	8000	3/14	15	3.7	9.6	2.0
Coronado Trail	9S7	8000	3/14	20	6.7	7.5	1.4
Crazy Horse (A)	9T2-A	10200	3/8	60	18.0	---	---
Emory Pass No. 1*	7T1	7800	3/14	2	0.4	1.1	---
Emory Pass No. 2*	7T2	7800	3/14	3	0.7	2.7	---
Frisco Divide	8S1-M	8000	3/14	7	1.6	6.7	1.5
Hannagan Meadows*	9S11	9090	3/14	56	15.3	17.4	---
High Peak (A)	9T1-A	10500	3/8	52	15.6	---	---
Hummingbird (A)	8S9-A	10550	3/17	66	19.8	32.5	---
Ice King	8S6	8020	3/14	25	7.4	13.1	5.8**
McKnight Cabin*	7S3-A	9300	3/17	12	2.1	---	---
Mogollon	8S2	7000	3/14	6	1.5	T	1.1
Nutrioso	9S4	8500	3/14	11	2.9	4.8	1.0
Redstone Trail	8S7	8600	3/14	32	9.7	16.2	6.9**
Rose Canyon	10T2	7300	3/14	8	1.9	4.0	1.4
Silver Creek Divide	8S8	9000	3/14	47	13.7	23.0	10.2**
State Line	9S8	8000	3/14	10	2.8	8.3	1.1
Whitewater (A)	8S10-A	10750	3/17	76	21.3	36.5	---

SALT RIVER

Baldy*	9S1	9125	3/14	48	12.7	13.2	6.8
Beaver Head	9S6	8000	3/14	15	3.7	9.6	2.0
Canyon Creek	10R7-M	7500	3/14	27	6.6	8.5	2.1**
Canyon Point	10R9	7600	3/14	33	8.1	9.6	---
Coronado Trail	9S7	8000	3/14	20	6.7	7.5	1.4
Forest Dale	10R6	6430	3/14	10	2.6	0.0	0.2
Ft. Apache	9R5	9160	3/14	48	12.1	12.6	7.4
Hannagan Meadows	9S11	9090	3/14	56	15.3	17.4	---
Hawley Lake	9R10	8300	3/14	44	10.7	14.6	---
Heber	10R4	7600	3/14	29	7.4	10.6	2.1
Maverick Fork	9S2	9050	3/14	58	16.4	16.6	8.4
McNary	9R2-M	7200	3/14	17	5.1	4.3	1.3
Milk Ranch	9R1	7000	3/14	11	2.9	0.3	0.6
Mt. Ord (A)	9S12-A	11000	3/18	114	28.5	38.5	---
Nutrioso*	9S4	8500	3/14	11	2.9	4.8	1.0
Smith Cienega (A)	9S14-A	9850	3/18	62	18.0	27.3	---
Wilson Lake	9R6	9000	3/14	64	17.9	15.4	---
Workman Creek	10S1	6900	3/13	33	10.6	16.3	3.4

BILL WILLIAMS RIVER

Camp Wood*	12R1	5700	3/13	5	1.7	0.0	0.3
Copper Basin Divide	12R6	6720	3/14	26	5.6	1.4	0.6**
Iron Springs	12R2	6200	3/14	12	2.3	0.0	0.2

(a) 1953-67, 15 year period. (*) Adjacent drainage. (**) 1953-67 Adjusted Average. (A) Aerial observation: Water content estimated.

SNOW

ABOUT MARCH 15, 1969

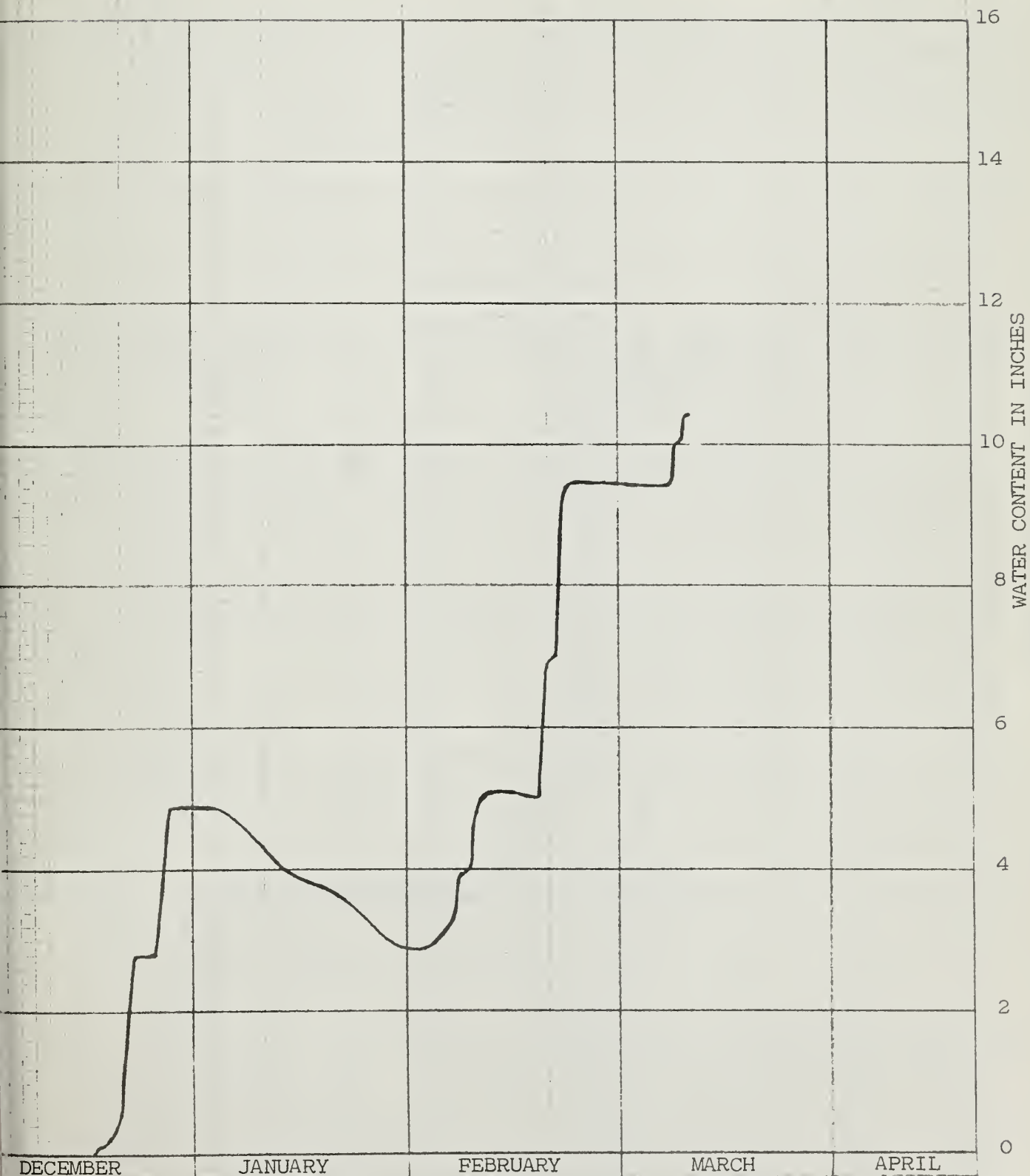
DRAINAGE BASIN and SNOW COURSE			CURRENT INFORMATION			PAST RECORD	
			DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	
NAME	NO.	ELEVATION				LAST YEAR	AVERAGE ^a
<u>VERDE RIVER</u>							
Baker Butte	11R6	7300	3/14	43	11.8	17.7	---
Camp Wood	12R1	5700	3/13	5	1.7	0.0	0.3
Chalender	12P1-M	7100	3/13	25	6.0	1.6	1.6
Copper Basin Divide	12R6	6720	3/14	26	5.6	1.4	0.6 **
Fort Valley	11P2	7350	3/14	32	8.3	3.0	1.1
Gaddes Canyon	12R4	7600	3/14	47	11.2	12.8	3.7 **
Happy Jack	11R5	7630	3/14	37	9.6	6.2	1.5
Iron Springs *	12R2	6200	3/14	12	2.3	0.0	0.2
Mingus Mountain	12R3	7100	3/14	26	5.1	0.0	0.3
Mormon Lake *	11R4	7350	3/15	32	8.4	5.5	2.3
Mormon Mountain	11R3-M	7500	3/15	45	13.2	8.0	3.4
Munds Park	11R1-M	6500	DISCONTINUED			T	0.9
Newman Park	11P5-M	6750	3/15	33	7.8	0.1	1.1 **
Snow Bowl #1	11P4	10260	3/14	79	19.6	13.8	8.9 **
Snow Bowl #2	11P6	11000	3/14	113	28.4	21.4	---
White Spar	12R5	6000	3/14	11	1.9	0.0	0.2 **
White Horse Lake Jct.	12P2	7150	3/14	32	7.4	5.0	---
<u>LOWER COLORADO RIVER</u>							
Bill Williams Summit	12P4	8950	3/14	79	21.7	17.6	---
Bill " Intermediate	12P5	8550	3/14	72	19.0	14.4	---
Bright Angel	12N1	8400	3/3	64	22.5	---	---
Chalender *	12P1-M	7100	3/13	25	6.0	1.6	1.6
Fort Valley	11P2	7350	3/14	32	8.3	3.0	1.1
Grand Canyon	11P1	7500	3/14	17	4.5	0.6	0.9
Williams Ski Run	12P3	7720	3/14	48	13.0	14.3	---
<u>LITTLE COLORADO RIVER</u>							
Baldy	9S1	9125	3/14	48	12.7	13.2	6.8
Canyon Creek	10R7-M	7500	3/14	27	6.6	8.5	2.1 **
Canyon Point	10R9	7600	3/14	33	8.1	9.6	---
Cheese Springs	9R7	8600	3/14	45	11.5	---	---
Forest Dale	10R6	6430	3/14	10	2.6	0.0	0.2
Ft. Apache	9R5	9160	3/14	48	12.1	12.6	7.4
Fort Valley	11P2	7350	3/14	32	8.3	3.0	1.1
Happy Jack *	11R5	7630	3/14	37	9.6	6.2	1.5
Heber	10R4	7600	3/14	29	7.4	10.6	2.1
Inner Basin #1	11P9	10100	MEASURED 3/1 ONLY			---	---
Inner Basin #2	11P8	9750	"			---	---
Inner Basin #3	11P7	10250	"			---	---
McNary	9R2-M	7200	3/14	17	5.1	4.3	1.3
Mormon Lake	11R4	7350	3/15	32	8.4	5.5	2.3
Mormon Mountain	11R3-M	7500	3/15	45	13.2	8.0	3.4
Nutriso	9S4	8500	3/14	11	2.9	4.8	1.0
Snow Bowl #1	11P4	10260	3/14	79	19.6	13.8	8.9 **
Snow Bowl #2	11P6	11000	3/14	113	28.4	21.4	---
Wilson Lake *	9R6	9000	3/14	64	17.9	15.4	---

(a) 1953-67, 15 year period. (*) Adjacent drainage. (**) 1953-67 Adjusted Average. (A) Aerial observation: Water content estimated.

SNOW PILLOW DATA

BAKER BUTTE

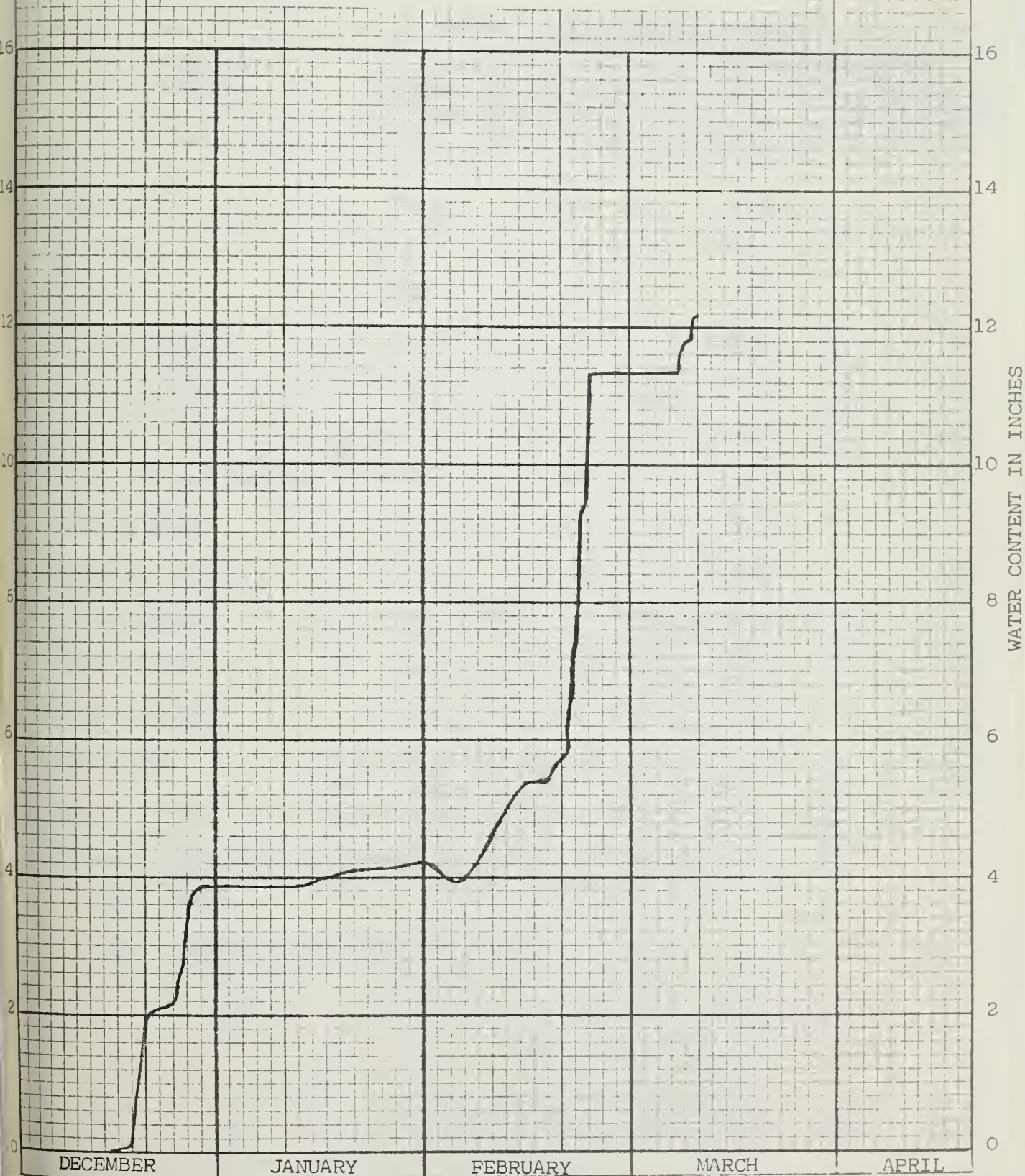
Elevation: 7300



S N O W P I L L O W D A T A

MORMON MOUNTAIN

Elevation: 7500



PRECIPITATION AT SELECTED ARIZONA STATIONS ^{1/}

STATION	Precipitation (Inches)			
	February - 1969		Current Water-Year (Oct. 1968 - Feb. 1969)	
	Total	Departure from Normal	Total	Departure from Normal
Alpine	.55	- .83	5.07	- 1.71
Ash Fork	1.00	- .15	3.87	- .90
Clifton	.35	- .56	3.83	- .45
Douglas Smelter	.30	- .29	2.47	- .61
Flagstaff WBAS*	3.91	+ 2.13	13.50	+ 5.72
McNary	2.41	+ .27	13.71	+ 3.47
Payson Ranger Station	2.85	+ .66	10.52	+ 1.56
Phoenix WBAS*	.78	- .07	4.10	+ .72
Prescott (City)	2.16	+ .22	8.47	+ .48
Springerville	- - -	N O T	A V A I L A B L E	- - - - -
Tucson WBAS*	.50	- .34	3.51	- .33
Winslow WBAS*	.66	+ .18	2.63	+ .18
Yuma WBAS*	.03	- .33	.77	- .80

^{1/} Data and Analysis furnished by Paul C. Kangieser,
Arizona State Climatologist, U. S. Weather Bureau,
ESSA, Tempe

* WBAS = Weather Bureau Airport Station.

PRECIPITATION

STORAGE GAGE DATA - ABOUT MARCH 15, 1969

Drainage Basin and Storage Gage	Elev.	Current Data		1953-67	From Approx. 11/1 to Date		
		Date of Reading	Mar.1-15 Precip.	Av.Precip Mar.1-15	This Year	1953-67 Average	% of Average

GILA RIVER

Silver Creek Divide	9000	3/14	1.50#	---	13.34	---	---
Hannagan Meadows	9030	3/14	2.15	1.57*	15.19	11.67*	130

SALT RIVER

Canyon Point	7600	3/14	3.57	---	23.06	---	---
Hannagan Meadows	9030	3/14	2.15	1.57*	15.19	11.67*	130
Little Wildcat							
(Heber Snow Course)	7600	3/14	2.87	1.57*	16.99	12.94*	131
Maverick Fork	9050	3/14	1.50	1.29*	14.43	11.22*	128
Workman Creek **	6970	3/13	2.07	1.69	18.35	15.57	118
Wilson Lake	9100	3/14	3.45	---	14.33	---	---

VERDE RIVER

Baker Butte	7300	3/14	2.64	---	22.75	---	---
Copper Basin Divide	6720	3/14	2.74	---	15.89	---	---
Fort Valley **	7350	3/14	3.34	.92	14.90	8.18	182
Happy Jack **	7480	3/14	2.71	1.21*	17.47	10.08*	173
Mingus Mountain	7660	3/14	3.29	1.02	14.65	8.77	147
Mormon Mountain	7500	3/15	3.33	---	24.19	---	---

LITTLE COLORADO

Inner Basin #1	9830	3/3	---	---	19.28#	---	---
Inner Basin #2	10050	3/3	---	---	20.62#	---	---
Sheep Crossing							
(Baldy Snow Course)	9125	3/14	2.22	1.17*	13.26	10.59*	135
Little Wildcat							
(Heber Snow Course)	7600	3/14	2.87	1.57*	16.99	12.94*	131

* 1953-67 Adjusted Average

** Data Supplied by U.S. Forest Service

Partially Estimated

SNOW COURSE

Agassiz
Baker Butte
Baldy
Bear Wallow
Beaver Head
Bill Williams Intermediate
Bill Williams Summit
Bright Angel
Camp Wood
Canyon Creek
Canyon Point
Chalender
Cheese Springs
Copper Basin Divide
Coronado Trail
Crazy Horse
Emory Pass #1 and #2
Forest Dale
Ft. Apache
Fort Valley
Frisco Divide
Gaddes Canyon
Grand Canyon
Hannagan Meadows
Happy Jack
Hawley Lake
Heber
High Peak
Hummingbird
Ice King
Inner Basin #1, #2, #3
Iron Springs
Maverick Fork
McKnight Cabin
McNary
Milk Ranch
Mingus Mountain
Mogollon
Mormon Lake
Mormon Mountain
Mt. Ord
Munds Park
Newman Park
Nutrioso
Redstone Trail
Rose Canyon
Silver Creek Divide
Smith Cienega
Snow Bowl #1
Snow Bowl #2
State Line
White Horse Lake Junction
White Spar
Whitewater
Williams Ski Run
Wilson Lake
Workman Creek

SNOW SURVEYOR

SCS & USBR - Jack Jorgensen and Sid Saunders
SCS
SCS - Bill Cole
Forest Service - Carl Sollers
N. A. Josh
Forest Service - Robert Wagenfehr
Forest Service - Robert Wagenfehr
National Park Service - Charles Sigler, Dist. Rgr.
Forest Service - Walter G. Richardson
SCS
SCS
Forest Service - M. E. Richards
SCS - Bill Cole
SCS - Bill Gray
Forest Service - John W. Holt
Forest Service - Loyd Barnett
SCS - T. Stevenson and J. Powell
Bureau of Indian Affairs - Raymond Endfield
SCS - Bill Cole
Rocky Mountain Forest & Range Exp. Station
Forest Service - Luna District Ranger
Paul G. Lidbeck
National Park Service - Robert E. Scott, Dist. Rgr.
N. A. Josh
Forest Service - Don W. Witt
Bureau of Indian Affairs - Raymond Endfield
SCS
Forest Service - Loyd Barnett
Ray Freeman
James R. Wray
SCS and USBR - Jack Jorgensen and Sid Saunders
SCS - Bill Gray
SCS - Bill Cole
Ray Freeman
Bureau of Indian Affairs - Raymond Endfield
Bureau of Indian Affairs - Raymond Endfield
Paul G. Lidbeck
James R. Wray
SCS - Jack Jorgensen
SCS - Jack Jorgensen
Salt River Project
SCS - Jack Jorgensen
SCS - Jack Jorgensen
Forest Service - John W. Holt
James R. Wray
Forest Service - Carl Sollers
James R. Wray
Salt River Project
Forest Service - Angus Porter
Forest Service - Angus Porter
Forest Service - Luna District Ranger
Forest Service - Robert Wagenfehr
SCS - Bill Gray
Ray Freeman
Forest Service - Robert Wagenfehr
SCS - Bill Cole
Rocky Mountain Forest & Range Exp. Station



The Following Organizations Cooperate in the Arizona Snow Survey Work

FEDERAL

Department of Agriculture

Soil Conservation Service

Forest Service

Apache Forest

Coconino Forest

Coronado Forest

Gila Forest

Kaibab Forest

Prescott Forest

Rocky Mountain Forest and Range Experiment Station

Tonto Forest

Department of Commerce

Weather Bureau

Arizona Section

Department of Interior

Bureau of Reclamation

Region III

Geological Survey

Arizona District

Bureau of Indian Affairs

Fort Apache Reservation

San Carlos Irrigation Project

National Park Service

Grand Canyon National Park

Gila Water Commissioner

Safford, Arizona

STATE

University of Arizona

Arizona Agricultural Experiment Station

Water Resource Research Center

IRRIGATION PROJECTS

Salt River Valley Water Users' Association

Phoenix, Arizona

San Carlos Irrigation and Drainage District

Coolidge, Arizona

PRIVATE

Southwest Forest Industries, Inc.

McNary, Arizona

Other organizations and individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
ROOM 6029 FEDERAL BUILDING
PHOENIX, ARIZONA 85025

OFFICIAL BUSINESS

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF AGRICULTURE

FIRST CLASS MAIL

FEDERAL - STATE - PRIVATE
COOPERATIVE SNOW SURVEYS

Furnishes the basic data
necessary for forecasting
water supply for irrigation,
domestic and municipal water
supply, hydro-electric power
generation, navigation,
mining and industry

*"The Conservation of Water begins
with the Snow Survey"*